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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/810,595	03/15/2001	Belford T. Coursey	MI22-1660	8140

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WELLS ST. JOHN P.S.  
601 W. FIRST AVENUE, SUITE 1300  
SPOKANE, WA 99201

EXAMINER

MITCHELL, JAMES M

ART UNIT PAPER NUMBER

2813

DATE MAILED: 07/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

9M

**Office Action Summary**

Application No.

09/810,595

Applicant(s)

COURSEY, BELFORD

Examiner

James M. Mitchell

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 March 2005.
- 2a) ☐ This action is **FINAL**.      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 26-30,32,54,58,60 and 61 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 26-30,32,54,58,60 and 61 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 5/19/2005.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

This office action is in response to the amendment filed March 28, 2005.

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 26-30, 32, 54, 58, 60 and 61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuoka et al. (U.S. 6,376,304).

Matsuoka (Fig. 3-38; Col. 6-12, Lines 40-15) discloses: a semiconductor substrate (1), a plurality of word lines (4-7) received over the semiconductor substrate, an insulative layer (902) received over the word lines and the substrate, the insulative layer comprising at least a single well (see left hand side of Figure 21) formed therein, the well comprising a base received over the word lines, the well peripherally defining an outline of a memory array area (left side of Figures), area peripheral to the well comprising memory peripheral circuitry area (right side of Figures; Fig. 3-30, Col. 6-12, Lines 40-15); a plurality of memory cell storage capacitors (13) received within said single well over the word lines; peripheral circuitry within the peripheral circuitry area operatively configured to write to and read from memory;

(cl. 27) the insulative layer (902) has a substantially planar outermost surface, and the capacitors have inner capacitor storage node electrodes (13) having elevational

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topmost surfaces received very near/close and therefore proximate to the insulative layer; (cl. 28) and the base is substantially planar (Fig. 21); (cl. 28) wherein the word line have insulative caps (701) and the well base has a lowest portion which is received at least 2000 angstroms above the caps (i.e. noting that layer 901 is 200nm); (cl. 29, 30) buried digit lines (601A) wherein the substantially planar well base has a lowest portion which is received at least 1000 angstroms above the outermost tops of the digit lines (i.e. noting that layer 105 is 50nm, layer 901 is 200nm and layer (12) is 50nm); (cl. 54) wherein individual capacitors have storage nodes electrode, one of the nodes being spaced laterally inward of the outline peripherally defined by the well thereby forming a space between said one electrodes and said outline (noting Fig. 26); (cl. 58) wherein the cell storage comprise an outercell electrode (14) having topmost surface which is received elevationally outward of the insulative layer (Col. 6-12, Lines 40-15); (cl. 60) and the nodes have a container shape (i.e. U shape similar to Applicant; Fig, 26); (cl. 61) and opening formed in well base (1001).

Matsuoka does not disclose its elevation as in the range of 50 angstroms and bellow nor does applicant disclose that the claimed range is for a particular unobvious purpose, produce an unexpected result, or are otherwise critical. As such, the claimed range would have been obvious since it has been held that mere dimensional limitations are prima facie obvious absent a disclosure that the limitations are for a particular unobvious purpose, produce an unexpected result, or are otherwise critical. See, for example, *In re Rose*, 220 F.2d 459, 105 USPQ 237 (CCPA 1955); *In re Rinehart*, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976); *Gardner v. TEC Systems, Inc.*, 725 F.2d

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1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984); In re Dailey, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

Claims 26-30, 54 and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kwok et al. (U.S. 5,770,499).

Kwok (Fig. 3-20) discloses: a semiconductor substrate (1), a plurality of word lines (104) received over the semiconductor substrate, an insulative layer (170) received over the word lines and the substrate, the insulative layer comprising at least a single well formed therein, the well comprising a base received over the word lines, the well peripherally defining an outline of a memory array area, area peripheral to the well comprising memory peripheral circuitry area (182); a plurality of memory cell storage capacitors (136) received within said single well over the word lines; peripheral circuitry within the peripheral circuitry area operatively configured to write to and read from memory; (cl. 27) the insulative layer (170) has a substantially planar outermost surface, and the capacitors have inner capacitor storage node electrodes (120) having elevational topmost surfaces received very near/close and therefore proximate to the insulative layer; (cl. 28) and the base is substantially planar (Fig. 18); (cl. 28) wherein the word line have insulative caps (110); (cl. 29, 30) buried digit lines (116) wherein the substantially planar well base has a lowest portion which is received at least 1000 angstroms above the outermost tops of the digit lines (i.e. noting that layer 105 is 50nm, layer 901 is 200nm and layer (12) is 50nm); (cl. 54) wherein individual capacitors have storage nodes electrode, one of the nodes being spaced laterally inward of the outline

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peripherally defined by the well thereby forming a space between said one electrodes and said outline (noting Fig. 18); (cl. 58) wherein the cell storage comprise an outercell electrode (120) having topmost surface which is received elevationally outward of the insulative layer (110, 170); (cl. 60) and the nodes have a container shape (i.e. U shape similar to Applicant; Fig. 1); (cl. 61) and opening formed in well base (i.e. space taken by item 116).

Kwok does not disclose its elevation as in the range of 50 angstroms and bellow or that the well base has a lowest portion which is received at least 2000 angstroms above the caps.

In any event, since applicant has not disclosed that the claimed range is for a particular unobvious purpose, produce an unexpected result, or are otherwise critical. As such, the claimed range would have been obvious since it has been held that mere dimensional limitations are prima facie obvious absent a disclosure that the limitations are for a particular unobvious purpose, produce an unexpected result, or are otherwise critical. See, for example, *In re Rose*, 220 F.2d 459, 105 USPQ 237 (CCPA 1955); *In re Rinehart*, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976); *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984); *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

### ***Response to Arguments***

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Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.


### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Auer et al. (U.S. 5,714,799), Tseng (U.S. 5,821,139), Chao et al. (U.S. 5,126,280) and Fazan et al. (U.S. 5,084,405) the use of a plurality of capacitors in a well/trench/opening in an insulative layer over word lines.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James M. Mitchell whose telephone number is (571) 272-1931. The examiner can normally be reached on M-F 8:00-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead Jr. can be reached on (571) 272-1702. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

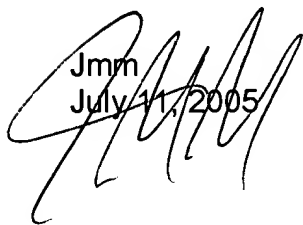
  
CARL WHITEHEAD, JR.  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800

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Jmm  
July 11, 2005

A handwritten signature in black ink, consisting of several loops and strokes, is written over the printed text "Jmm" and "July 11, 2005".